

PATENT APPLICATION
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Atty. Dkt.: A8173

Paige L. HIGBY, et al.

Continuation of
Appln. No.: 08/472,189

Confirmation No. Unknown

Group Art Unit: Unknown

Filed: August 31, 2001

Examiner: Unknown

For: GLASS COMPOSITIONS

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Page 1, first paragraph:

This application is a continuation of Application No. 08/472,189 (Confirmation No. Unknown), filed June 7, 1995, which is a continuation of Application No. 08/285,652, filed August 3, 1994, which is a continuation-in-part of United States application No. 08/190,883, filed February 3, 1994, the disclosures of which are all incorporated herein by reference.

IN THE CLAIMS:

Claims 2-12 are canceled.

Claims 13-47 are added as new claims.

13. A neutral gray colored glass composition having a base glass portion comprising:

SiO ₂	65 to 80 percent by weight
Na ₂ O	10 to 20 percent by weight
CaO	5 to 15 percent by weight
MgO	0 to 10 percent by weight
Al ₂ O ₃	0 to 5 percent by weight
K ₂ O	0 to 5 percent by weight

and a colorant portion consisting essentially of:

Fe ₂ O ₃ (total iron)	0.30 to 0.70 percent by weight
FeO	up to 0.16 percent by weight
Co ₃ O ₄	3 to 25 PPM
Se	0.5 to 10 PPM

wherein the color of the glass is characterized by a dominant wavelength less than 560 nanometers, a color purity of no higher than 6 percent and a visible light transmission of 70 percent or greater at a thickness of 4 millimeters.

14. The composition as in claim 13 wherein the direct solar heat transmission is at least 12 percentage points below the visible light transmission.

15. The composition as in claim 14 wherein the Fe₂O₃ concentration is from 0.45 to 0.65 weight percent, the FeO concentration is from 0.08 to 0.16 weight percent, the Co₃O₄ concentration is from 8 to 20 PPM and the Se concentration is from 1 to 5 PPM

16. The composition of claim 13 wherein the color of the glass is characterized by

a dominant wavelength in the range of 494 to 560 nanometers and a color purity of no higher than 3%.

17. The composition as in claim 13 further including additional ultraviolet absorbing material.

18. The composition as in claim 17 wherein said ultraviolet absorbing material is titanium dioxide present in an amount up to 1.5 wt. % of the glass composition.

19. The composition as in claim 18 wherein said TiO_2 present is in an amount from 0.33 to 1.0 wt. %.

20. A glass sheet made from the composition as recited in claim 13.

21. The glass sheet as in claim 20 wherein the sheet has a thickness between 1.7 to 5 mm.

22. The glass sheet as in claim 20 wherein the color of the glass is characterized by a dominant wavelength in the range of 494 to 560 nanometers and a color purity of no higher than 3%.

23. A neutral gray colored glass composition having a base glass portion comprising:

SiO_2	65 to 80 percent by weight
Na_2O	10 to 20 percent by weight
CaO	5 to 15 percent by weight
MgO	0 to 10 percent by weight
Al_2O_3	0 to 5 percent by weight
K_2O	0 to 5 percent by weight

and a colorant portion consisting essentially of:

Fe ₂ O ₃ (total iron)	0.30 to 0.70 percent by weight
FeO	up to 0.16 by weight
Co ₃ O ₄	3 to 25 PPM
Se	0.5 to 10 PPM
NiO	up to 50 PPM

wherein the color of the glass is characterized by a dominant wavelength in the range of less than 560 nanometers, a color purity of no higher than 6 percent and a visible light transmission of 70 percent or greater at a thickness of 4 millimeters.

24. The composition as in claim 23 wherein the direct solar heat transmission is at least 12 percentage points below the visible light transmission.

25. The composition as in claim 23 wherein the Fe₂O₃ concentration is from 0.45 to 0.65 weight percent, the FeO concentration is from 0.08 to 0.16 weight percent, the Co₃O₄ concentration is from 22 to 27 PPM, and the Se concentration is from 1 to 5 PPM.

26. The composition of claim 24 wherein the color of the glass is characterized by A dominant wavelength in the range of 494 to 560 nanometers and a color purity of no higher than 3%.

27. The composition as in claim 23 further including additional ultraviolet absorbing material.

28. The composition as in claim 27 wherein said ultraviolet absorbing material is titanium dioxide present in an amount up to 1.5 wt. % of the glass composition.

29. The composition as in claim 28 wherein said TiO_2 is present in an amount from 0.33 to 1.0 wt. %.

30. A glass sheet made from the composition as recited in claim 23.

31. The glass sheet as in claim 30 wherein the sheet has a thickness between 1.7 to 5 mm.

32. The glass sheet as in claim 30 wherein the color of the glass is characterized by a dominant wavelength in the range of 494 to 560 nanometers and a color purity of no higher than 3%.

33. A neutral gray colored glass composition having a base glass portion comprising:

SiO_2	65 to 80 percent by weight
Na_2O	10 to 20 percent by weight
CaO	5 to 15 percent by weight
MgO	0 to 10 percent by weight
Al_2O_3	0 to 5 percent by weight
K_2O	0 to 5 percent by weight

and a colorant portion consisting essentially of:

Fe_2O_3 (total iron)	0.45 to 0.70 percent by weight
FeO	up to 0.16 percent by weight
Co_3O_4	3 to 25 PPM
Se	0.5 to 10 PPM

wherein the color of the glass is characterized by a dominant wavelength less than 560 nanometers, a color purity of no higher than about 8 percent, a visible light transmission of greater than 70 percent, and a direct solar heat transmission at least 12 percentage points below the visible light transmission at a thickness of 4 millimeters.

34. The composition of claim 33 wherein the color of the glass is characterized by a dominant wavelength in the range of 494 to 560 nanometers and a color purity of no higher than 3% at a thickness of 4 millimeters.

35. The composition as in claim 33 further including additional ultraviolet absorbing material.

36. A glass sheet made from the composition as recited in claim 33.

37. A neutral gray colored glass composition having a base glass portion comprising:

SiO ₂	65 to 80 percent by weight
Na ₂ O	10 to 20 percent by weight
CaO	5 to 15 percent by weight
MgO	0 to 10 percent by weight
Al ₂ O ₃	0 to 5 percent by weight
K ₂ O	0 to 5 percent by weight

and a colorant portion consisting essentially of:

Fe ₂ O ₃ (total iron)	0.45 to 0.70 percent by weight
FeO	up to 0.16 percent by weight
Co ₃ O ₄	3 to 25 PPM
Se	0.5 to 10 PPM

wherein the color of the glass is characterized by a dominant wavelength less than 560 nanometers, a color purity of no higher than 6 percent and a visible light transmission of greater than 70 percent at a thickness of 4 millimeters.

38. The composition as in claim 37 wherein the color of the glass is characterized by a dominant wavelength in the range of 494 to 560 nanometers and a color purity of no higher than 3 percent at a thickness of 4 millimeters.

39. A neutral gray colored glass composition having a base glass portion comprising:

SiO ₂	65 to 80 percent by weight
Na ₂ O	10 to 20 percent by weight
CaO	5 to 15 percent by weight
MgO	0 to 10 percent by weight
Al ₂ O ₃	0 to 5 percent by weight
K ₂ O	0 to 5 percent by weight

and a colorant portion consisting essentially of:

Fe ₂ O ₃ (total iron)	greater than 0.45 up to 0.65 percent by weight
FeO	up to 0.16 percent by weight
Co ₃ O ₄	3 to 25 PPM
Se	0.5 to 10 PPM
NiO	up to 50 PPM

wherein the glass has a visible light transmission luminous transmittance of greater than 70 percent at a thickness of 4.0 millimeters.

40. The composition as in claim 39 wherein the color of the glass is characterized by a dominant wavelength in the range of 494 to 560 nanometers and a color purity of no higher than 6 percent at a thickness of 4.0 millimeters.

41. The composition of claim 39 wherein the color of the glass is characterized by a dominant wavelength in the range of 494 to 560 nanometers and a color purity of no higher than 3% at a thickness of 4.0 millimeters.

42. The composition as in claim 39 wherein the Fe_2O_3 concentration is from 0.51 to 0.61 weight percent.

43. The composition as in claim 39 wherein the direct solar heat transmission is at least 12 percentage points below the visible light transmission.

44. The composition as in claim 39 further including additional ultraviolet absorbing material.

45. A glass sheet made from the composition as recited in claim 33.

46. The composition as in claim 39 wherein the Fe_2O_3 concentration is from 0.51 to 0.61 weight percent, the FeO concentration is up to 0.14 weight percent, the Co_3O_4 concentration is from 5 to 24 PPM, the Se concentration is from 1 to 9 PPM and the NiO concentration is 15 to 31 PPM and further wherein said composition has a visible light transmission of 70 percent or greater at a thickness of 4 millimeters.

47. The composition as in claim 33 wherein the Fe_2O_3 concentration is from 0.51 to 0.61 weight percent, the FeO concentration is up to 0.14 weight percent, the Co_3O_4 concentration is from 5 to 24 PPM and the Se concentration is from 1 to 9 PPM.

HIGBY et al.
A8173
Continuation of Appln. Serial No. 08/472,189
Preliminary Amendment

REMARKS

After entry of the present Preliminary Amendment, Claims 1 and 13-47 are pending in the present application. Claim 1 has been maintained in the application in order to avoid the possibility of the application having no claims pending at one point in time. The Examiner is authorized to cancel Claim 1. Alternatively, Applicants will file a supplemental preliminary amendment to cancel Claim 1.

Claims 13-47 have been added. These claims have been copied or substantially copied from U.S. Patent No. 6,114,264, a copy of which is being submitted concurrently herewith in an Information Disclosure Statement. (A further Information Disclosure Statement will be filed to make of record all the prior art cited in the parent and grandparent applications.)

Applicants have copied or substantially copied Claims 1-35 of the '264 Patent to preserve their rights under 35 U.S.C. § 135 to provoke an interference. Applicants may submit Rule 607 and 608 papers, as appropriate.

Applicant identifies in Table I below exemplary support in the present application for new Claims 13-47.

TABLE I

New Claims 13-47	Exemplary Support in the Instant Application																																
<p>13. A neutral gray colored glass composition having a base glass portion comprising:</p> <table border="1" data-bbox="162 693 787 913"> <tr><td>SiO₂</td><td>65 to 80 percent by weight</td></tr> <tr><td>Na₂O</td><td>10 to 20 percent by weight</td></tr> <tr><td>CaO</td><td>5 to 15 percent by weight</td></tr> <tr><td>MgO</td><td>0 to 10 percent by weight</td></tr> <tr><td>Al₂O₃</td><td>0 to 5 percent by weight</td></tr> <tr><td>K₂O</td><td>0 to 5 percent by weight</td></tr> </table> <p>and a colorant portion consisting essentially of:</p> <table border="1" data-bbox="162 1102 787 1270"> <tr><td>Fe₂O₃ (total iron)</td><td>0.30 to 0.70 percent by weight</td></tr> <tr><td>FeO</td><td>up to 0.16 percent by weight</td></tr> <tr><td>Co₃O₄</td><td>3 to 25 PPM</td></tr> <tr><td>Se</td><td>0.5 to 10 PPM</td></tr> </table> <p>wherein</p> <p>the color of the glass is characterized by a dominant wavelength less than 560 nanometers,</p> <p>a color purity of no higher than 6 percent</p> <p>and</p> <p>a visible light transmission of 70 percent or greater at a thickness of 4 millimeters.</p>	SiO ₂	65 to 80 percent by weight	Na ₂ O	10 to 20 percent by weight	CaO	5 to 15 percent by weight	MgO	0 to 10 percent by weight	Al ₂ O ₃	0 to 5 percent by weight	K ₂ O	0 to 5 percent by weight	Fe ₂ O ₃ (total iron)	0.30 to 0.70 percent by weight	FeO	up to 0.16 percent by weight	Co ₃ O ₄	3 to 25 PPM	Se	0.5 to 10 PPM	<p>“there is provided an IR and UV absorbing soda lime silica glass of a neutral tint” (4: 2-3); “base glass” (6:28)</p> <table border="1" data-bbox="820 693 1364 913"> <tr><td>SiO₂</td><td>65 to 80 %</td></tr> <tr><td>Na₂O</td><td>10 to 20</td></tr> <tr><td>CaO</td><td>5 to 15</td></tr> <tr><td>MgO</td><td>0 to 10</td></tr> <tr><td>Al₂O₃</td><td>0 to 5</td></tr> <tr><td>K₂O</td><td>0 to 5</td></tr> </table> <p>(6:14-24)</p> <p>“the coloring constituents of the present invention: (6; 26-27)</p> <p>“total iron content expressed as Fe₂O₃ ... of from 0.3 to 0.7% by weight” (4:13-14); 0.16 wt. % FeO (Example 9; “from about 3 to 25 ppm of Co₃O₄” (4:16); “0.5 to 10 parts by million (ppm) of Se (4:15-16)</p> <p>“a dominant wavelength less than 560 nm” (4:7-8)</p> <p>“a color purity not greater than 6” (4:8-9)</p> <p>“in a 4 mm thickness, a visible light transmission of at least 70%” (4:4-5)</p>	SiO ₂	65 to 80 %	Na ₂ O	10 to 20	CaO	5 to 15	MgO	0 to 10	Al ₂ O ₃	0 to 5	K ₂ O	0 to 5
SiO ₂	65 to 80 percent by weight																																
Na ₂ O	10 to 20 percent by weight																																
CaO	5 to 15 percent by weight																																
MgO	0 to 10 percent by weight																																
Al ₂ O ₃	0 to 5 percent by weight																																
K ₂ O	0 to 5 percent by weight																																
Fe ₂ O ₃ (total iron)	0.30 to 0.70 percent by weight																																
FeO	up to 0.16 percent by weight																																
Co ₃ O ₄	3 to 25 PPM																																
Se	0.5 to 10 PPM																																
SiO ₂	65 to 80 %																																
Na ₂ O	10 to 20																																
CaO	5 to 15																																
MgO	0 to 10																																
Al ₂ O ₃	0 to 5																																
K ₂ O	0 to 5																																
<p>14. The composition as in claim 13 wherein</p> <p>the direct solar heat transmission is at least 12 percentage points below the visible light</p>	<p>“a direct solar heat transmission at least 12 percentage points below the visible light</p>																																

transmission.	transmission (4:5-7)
<p>15. The composition as in claim 14 wherein</p> <p>the Fe_2O_3 concentration is from 0.45 to 0.65 weight percent,</p> <p>the FeO concentration is from 0.08 to 0.16 weight percent,</p> <p>the Co_3O_4 concentration is from 8 to 20 PPM and</p> <p>the Se concentration is from 1 to 5 PPM.</p>	<p>“preferred compositions include ... 0.45 to 0.65% total iron (as Fe_2O_3)” (9:8-10)</p> <p>Examples 4 and 9 (<i>see</i>, Table I)</p> <p>“8 to 20 ppm Co_3O_4” (9:11)</p> <p>“1 to 5 ppm Se” (9:11)</p>
<p>16. The composition of claim 13 wherein</p> <p>the color of the glass is characterized by</p> <p>a dominant wavelength in the range of 494 to 560 nanometers and</p> <p>a color purity of no higher than 3%.</p>	<p>Examples 9 and 10 (<i>see</i>, Table I)</p> <p>“color purity ... most preferably no more than 3” (4:9-10)</p>
<p>17. The composition as in claim 13 further including</p> <p>additional ultraviolet absorbing material.</p>	<p>“TiO_2 may be added to the glass” (4:20)</p>
<p>18. The composition as in claim 17 wherein</p> <p>said ultraviolet absorbing material is titanium dioxide</p> <p>present in an amount up to 1.5 wt. % of the glass composition.</p>	<p>“TiO_2 may be added to the glass ...</p> <p>[in the range of] 0 to 1.5 weight percent TiO_2” (4:20-21)</p>
<p>19. The composition as in claim 18 wherein</p> <p>said TiO_2 is present in an amount from 0.33 to 1.0 wt. %.</p>	<p>Examples 2 and 10 (Table I)</p>

20. A glass sheet made from the composition as recited in claim 13.	"glass sheets" (7:12)																								
21. The glass sheet as in claim 20 wherein the sheet has a thickness between 1.7 to 5 mm.	"glass sheets" (7:12) "the glass sheets for windshield use are of a thickness in the range of from about 1.7 mm to about 2.5 mm, while those tempered and used as sidelights or back lights are in the range of about 3 mm to about 5 mm thick" (7:16-20)																								
22. The glass sheet as in claim 20 wherein the color of the glass is characterized by a dominant wavelength in the range of 494 to 560 nanometers and a color purity of no higher than 3%.	Examples 9 and 10 (<i>see</i> , Table I) "color purity ... most preferably no more than 3" (4:9-10)																								
23. A neutral gray colored glass composition having a base glass portion comprising:	"neutral tint" (4:2-3); "base glass" (6:28)																								
<table> <tr><td>SiO₂</td><td>65 to 80 percent by weight</td></tr> <tr><td>Na₂O</td><td>10 to 20 percent by weight</td></tr> <tr><td>CaO</td><td>5 to 15 percent by weight</td></tr> <tr><td>MgO</td><td>0 to 10 percent by weight</td></tr> <tr><td>Al₂O₃</td><td>0 to 5 percent by weight</td></tr> <tr><td>K₂O</td><td>0 to 5 percent by weight</td></tr> </table>	SiO ₂	65 to 80 percent by weight	Na ₂ O	10 to 20 percent by weight	CaO	5 to 15 percent by weight	MgO	0 to 10 percent by weight	Al ₂ O ₃	0 to 5 percent by weight	K ₂ O	0 to 5 percent by weight	<table> <tr><td>SiO₂</td><td>65 to 80 %</td></tr> <tr><td>Na₂O</td><td>10 to 20</td></tr> <tr><td>CaO</td><td>5 to 15</td></tr> <tr><td>MgO</td><td>0 to 10</td></tr> <tr><td>Al₂O₃</td><td>0 to 5</td></tr> <tr><td>K₂O</td><td>0 to 5</td></tr> </table>	SiO ₂	65 to 80 %	Na ₂ O	10 to 20	CaO	5 to 15	MgO	0 to 10	Al ₂ O ₃	0 to 5	K ₂ O	0 to 5
SiO ₂	65 to 80 percent by weight																								
Na ₂ O	10 to 20 percent by weight																								
CaO	5 to 15 percent by weight																								
MgO	0 to 10 percent by weight																								
Al ₂ O ₃	0 to 5 percent by weight																								
K ₂ O	0 to 5 percent by weight																								
SiO ₂	65 to 80 %																								
Na ₂ O	10 to 20																								
CaO	5 to 15																								
MgO	0 to 10																								
Al ₂ O ₃	0 to 5																								
K ₂ O	0 to 5																								
and a colorant portion consisting essentially of:	(6:14-24) "coloring constituents" (6:26-27)																								
<table> <tr><td>Fe₂O₃ (total iron)</td><td>0.30 to 0.70 percent by weight</td></tr> <tr><td>FeO</td><td>up to 0.16] by weight</td></tr> <tr><td>Co₃O₄</td><td>3 to 25 PPM</td></tr> <tr><td>Se</td><td>0.5 to 10 PPM</td></tr> <tr><td>NiO</td><td>up to 50 PPM</td></tr> </table>	Fe ₂ O ₃ (total iron)	0.30 to 0.70 percent by weight	FeO	up to 0.16] by weight	Co ₃ O ₄	3 to 25 PPM	Se	0.5 to 10 PPM	NiO	up to 50 PPM	"total iron content expressed as Fe ₂ O ₃ ... of from 0.3 to 0.7% by weight" (4:13-14); 0.16 wt. % FeO (Example 9; "from about 3 to 25 ppm of Co ₃ O ₄ " (4:16); "0.5 to 10 parts by														
Fe ₂ O ₃ (total iron)	0.30 to 0.70 percent by weight																								
FeO	up to 0.16] by weight																								
Co ₃ O ₄	3 to 25 PPM																								
Se	0.5 to 10 PPM																								
NiO	up to 50 PPM																								

<p>wherein</p> <p>the color of the glass is characterized by</p> <p>a dominant wavelength in the range of less than 560 nanometers,</p> <p>a color purity of no higher than 6 percent and</p> <p>a visible light transmission of 70 percent or greater at a thickness of 4 millimeters.</p>	<p>million (ppm) of Se (4:15-16); "0 to 50 ppm NiO" (4:20)</p> <p>"a dominant wavelength less than 560 nm" (4:7-8)</p> <p>"a color purity not greater than 6" (4:8-9)</p> <p>"in a 4 mm thickness, a visible light transmission of at least 70%" (4:4-5)</p>
<p>24. The composition as in claim 23 wherein</p> <p>the direct solar heat transmission is at least 12 percentage points below the visible light transmission.</p>	<p>"a direct solar heat transmission at least 12 percentage points below the visible light transmission (4:5-7)</p>
<p>25. The composition as in claim 23 wherein</p> <p>the Fe₂O₃ concentration is from 0.45 to 0.65 weight percent,</p> <p>the FeO concentration is from 0.08 to 0.16 weight percent,</p> <p>the Co₃O₄ concentration is from 22 to 27 PPM, and</p> <p>the Se concentration is from 1 to 5 PPM.</p>	<p>"preferred compositions include ... 0.45 to 0.65% total iron (as Fe₂O₃)" (9:8-10)</p> <p>Examples 4 and 9 (<i>see</i>, Table I)</p> <p>"8 to 20 ppm Co₃O₄" (9:11)</p> <p>"1 to 5 ppm Se" (9:11)</p>
<p>26. The composition of claim 24 wherein</p> <p>the color of the glass is characterized by</p> <p>a dominant wavelength in the range of 494 to 560 nanometers and</p>	<p>Examples 9 and 10 (<i>see</i>, Table I)</p>

a color purity of no higher than 3%.	"color purity ... most preferably no more than 3" (4:9-10)
27. The composition as in claim 23 further including additional ultraviolet absorbing material.	"TiO ₂ may be added to the glass" (4:20)
28. The composition as in claim 27 wherein said ultraviolet absorbing material is titanium dioxide present in an amount up to 1.5 wt. % of the glass composition.	"TiO ₂ may be added to the glass ... [in the range of] 0 to 1.5 weight percent TiO ₂ " (4:20-21)
29. The composition as in claim 28 wherein said TiO ₂ is present in an amount from 0.33 to 1.0 wt. %.	Examples 2 and 10 (Table I)
30. A glass sheet made from the composition as recited in claim 23.	"glass sheets" (7:12)
31. The glass sheet as in claim 30 wherein the sheet has a thickness between 1.7 to 5 mm.	"glass sheets" (7:12) "the glass sheets for windshield use are of a thickness in the range of from about 1.7 mm to about 2.5 mm, while those tempered and sued as sidelights or backlights are in the range of about 3 mm to about 5 mm thick" (7:16-20).
32. The glass sheet as in claim 30 wherein the color of the glass is characterized by a dominant wavelength in the range of 494 to 560 nanometers and a color purity of no higher than 3%.	Examples 9 and 10 (<i>see</i> , Table I) "color purity ... most preferably no more than 3: (4:9-10)
33. A neutral gray colored glass composition having a base glass portion comprising:	"there is provided an IR and UV absorbing soda lime silica glass of a neutral tint" (4:2-3); "base glass" (6:28)

SiO ₂	65 to 80 percent by weight	SiO ₂	65 to 80 %
Na ₂ O	10 to 20 percent by weight	Na ₂ O	10 to 20
CaO	5 to 15 percent by weight	CaO	5 to 15
MgO	0 to 10 percent by weight	MgO	0 to 10
Al O ₃	0 to 5 percent by weight	Al O ₃	0 to 5
K ₂ O	0 to 5 percent by weight	K ₂ O	0 to 5
and a colorant portion consisting essentially of:		(6:14-24)	
Fe ₂ O ₃ (total iron)	0.45 to 0.7-0 percent by Weight	"coloring constituents" (6:26-27)	
FeO	up to 0.16 percent by weight	"total iron content expressed as Fe ₂ O ₃ , ... of from 0.3 to 0.7 % by weight" (4:13-14); "preferred compositions include ... 0.45 to 0.65 % total iron (as Fe ₂ O ₃)" (9:8-10); 0.16 wt % FeO (Example 9); "from about 3 to 25 ppm of Co ₃ O ₄ " (4:16); "0.5 to 10 parts by million (ppm) of Se" (4:15-16)	
Co ₃ O ₄	3 to 25 PPM		
Se	0.5 to 10 PPM		
wherein		"a dominant wavelength less than 560 nm" (4:7-8)	
the color of the glass is characterized by a dominant wavelength less than 560 nanometers,		"a color purity not greater than 6" (4:8-9)	
a color purity of no higher than about 8 percent,		"in a 4 mm thickness, a visible light transmission of at least 70%" (4:4-5)	
a visible light transmission of greater than 70 percent, and		"a direct solar heat transmission at least 12 percentage points below the visible light transmission (4:5-7)	
a direct solar heat transmission at least 12 percentage points below the visible light transmission at a thickness of 4 millimeters.			
34. The composition of claim 33 wherein			
the color of the glass is characterized by			
dominant wavelengths in the range of 494 to 56 nanometers and		Examples 9 and 10 (<i>see</i> , Table I)	

a color purity of no higher than 3% at a thickness of 4 millimeters.	"color purity ... most preferably no more than 3" (4:9-10)																								
35. The composition as in claim 33 further including additional ultraviolet absorbing material.	"TiO ₂ may be added to the glass" (4:20)																								
36. A glass sheet made from the composition as recited in claim 33.	"glass sheets" (7:12)																								
37. A neutral gray colored glass composition having a base glass portion comprising:	"neutral tint" (4:2-3); "base glass" (6:28)																								
<table> <tr><td>SiO₂</td><td>65 to 80 percent by weight</td></tr> <tr><td>Na₂O</td><td>10 to 20 percent by weight</td></tr> <tr><td>CaO</td><td>5 to 15 percent by weight</td></tr> <tr><td>MgO</td><td>0 to 10 percent by weight</td></tr> <tr><td>Al₂O₃</td><td>0 to 5 percent by weight</td></tr> <tr><td>K₂O</td><td>0 to 5 percent by weight</td></tr> </table>	SiO ₂	65 to 80 percent by weight	Na ₂ O	10 to 20 percent by weight	CaO	5 to 15 percent by weight	MgO	0 to 10 percent by weight	Al ₂ O ₃	0 to 5 percent by weight	K ₂ O	0 to 5 percent by weight	<table> <tr><td>SiO₂</td><td>65 to 80 %</td></tr> <tr><td>Na₂O</td><td>10 to 20</td></tr> <tr><td>CaO</td><td>5 to 15</td></tr> <tr><td>MgO</td><td>0 to 10</td></tr> <tr><td>Al₂O₃</td><td>0 to 5</td></tr> <tr><td>K₂O</td><td>0 to 5</td></tr> </table>	SiO ₂	65 to 80 %	Na ₂ O	10 to 20	CaO	5 to 15	MgO	0 to 10	Al ₂ O ₃	0 to 5	K ₂ O	0 to 5
SiO ₂	65 to 80 percent by weight																								
Na ₂ O	10 to 20 percent by weight																								
CaO	5 to 15 percent by weight																								
MgO	0 to 10 percent by weight																								
Al ₂ O ₃	0 to 5 percent by weight																								
K ₂ O	0 to 5 percent by weight																								
SiO ₂	65 to 80 %																								
Na ₂ O	10 to 20																								
CaO	5 to 15																								
MgO	0 to 10																								
Al ₂ O ₃	0 to 5																								
K ₂ O	0 to 5																								
and a colorant portion consisting essentially of:	(6:14-24) "coloring constituents" (6:26-27)																								
<table> <tr><td>Fe₂O₃ (total iron)</td><td>0.45 to 0.70 percent by weight</td></tr> <tr><td>FeO</td><td>up to 0.16 percent by weight</td></tr> <tr><td>Co₃O₄</td><td>3 to 25 PPM</td></tr> <tr><td>Se</td><td>0.5 to 10 PPM</td></tr> </table>	Fe ₂ O ₃ (total iron)	0.45 to 0.70 percent by weight	FeO	up to 0.16 percent by weight	Co ₃ O ₄	3 to 25 PPM	Se	0.5 to 10 PPM	"total iron content expressed as Fe ₂ O ₃ , ... of from 0.3 to 0.7 % by weight" (4:13-14); "preferred compositions include ... 0.45 to 0.65 % total iron (as Fe ₂ O ₃)" (9:8-10); 0.16 wt % FeO (Example 9); "from about 3 to 25 ppm of Co ₃ O ₄ " (4:16); "0.5 to 10 parts by million (ppm) of Se" (4:15-16)																
Fe ₂ O ₃ (total iron)	0.45 to 0.70 percent by weight																								
FeO	up to 0.16 percent by weight																								
Co ₃ O ₄	3 to 25 PPM																								
Se	0.5 to 10 PPM																								
wherein																									
the color of the glass is characterized by a dominant wavelength less than 560 nanometers,	"a dominant wavelength less than 560 nm" (4:7-8)																								
a color purity of no higher than 6 percent and	"a color purity not greater than 6" (4:8-9)																								
a visible light transmission of greater than	"in a 4 mm thickness, a visible light																								

HIGBY et al.

A8173

Continuation of Appln. Serial No. 08/472,189

Preliminary Amendment

70 percent at a thickness of 4 millimeters.	transmission of at least 70%" (4:4-5)																								
38. The composition as in claim 37 wherein the color of the glass is characterized by a dominant wavelength in the range of 494 to 560 nanometers and a color purity of no higher than 3 percent at a thickness of 4 millimeters.	Examples 9 and 10 (<i>see</i> , Table I) "color purity ... most preferably no more than 3 (4:9-10)																								
39. A neutral gray colored glass composition having a base glass portion comprising: <table><tr><td>SiO₂</td><td>65 to 80 percent by weight</td></tr><tr><td>Na₂O</td><td>10 to 20 percent by weight</td></tr><tr><td>CaO</td><td>5 to 15 percent by weight</td></tr><tr><td>MgO</td><td>0 to 10 percent by weight</td></tr><tr><td>Al₂O₃</td><td>0 to 5 percent by weight</td></tr><tr><td>K₂O</td><td>0 to 5 percent by weight</td></tr></table>	SiO ₂	65 to 80 percent by weight	Na ₂ O	10 to 20 percent by weight	CaO	5 to 15 percent by weight	MgO	0 to 10 percent by weight	Al ₂ O ₃	0 to 5 percent by weight	K ₂ O	0 to 5 percent by weight	"neutral tint" (4:2-3); "base glass" (6:28) <table><tr><td>SiO₂</td><td>65 to 80 %</td></tr><tr><td>Na₂O</td><td>10 to 20</td></tr><tr><td>CaO</td><td>5 to 15</td></tr><tr><td>MgO</td><td>0 to 10</td></tr><tr><td>Al₂O₃</td><td>0 to 5</td></tr><tr><td>K₂O</td><td>0 to 5</td></tr></table>	SiO ₂	65 to 80 %	Na ₂ O	10 to 20	CaO	5 to 15	MgO	0 to 10	Al ₂ O ₃	0 to 5	K ₂ O	0 to 5
SiO ₂	65 to 80 percent by weight																								
Na ₂ O	10 to 20 percent by weight																								
CaO	5 to 15 percent by weight																								
MgO	0 to 10 percent by weight																								
Al ₂ O ₃	0 to 5 percent by weight																								
K ₂ O	0 to 5 percent by weight																								
SiO ₂	65 to 80 %																								
Na ₂ O	10 to 20																								
CaO	5 to 15																								
MgO	0 to 10																								
Al ₂ O ₃	0 to 5																								
K ₂ O	0 to 5																								
and a colorant portion consisting essentially of: <table><tr><td>Fe₂O₃ (total iron)</td><td>greater than 0.45 up to 0.65 percent by weight</td></tr><tr><td>FeO</td><td>up to 0.16 percent by weight</td></tr><tr><td>Co₃O₄</td><td>3 to 25 PPM</td></tr><tr><td>Se</td><td>0.5 to 10 PPM</td></tr><tr><td>NiO</td><td>up to 50 PPM</td></tr></table>	Fe ₂ O ₃ (total iron)	greater than 0.45 up to 0.65 percent by weight	FeO	up to 0.16 percent by weight	Co ₃ O ₄	3 to 25 PPM	Se	0.5 to 10 PPM	NiO	up to 50 PPM	(6:14-24) "coloring constituents" (6:26-27) "total iron content expressed as Fe ₂ O ₃ , ... of from 0.3 to 0.7 % by weight" (4:13-14); "preferred compositions include ... 0.45 to 0.65 % total iron (as Fe ₂ O ₃)" (9:8-10); 0.16 wt % FeO (Example 9); "from about 3 to 25 ppm of Co ₃ O ₄ " (4:16); "0.5 to 10 parts by million (ppm) of Se" (4:15-16) "in a 4 mm thickness, visible light transmission of at least 70%" (4:4-5)														
Fe ₂ O ₃ (total iron)	greater than 0.45 up to 0.65 percent by weight																								
FeO	up to 0.16 percent by weight																								
Co ₃ O ₄	3 to 25 PPM																								
Se	0.5 to 10 PPM																								
NiO	up to 50 PPM																								
wherein the glass has a visible light transmission luminous transmittance of greater than 70 percent at a thickness of 4.0 millimeters.																									
40. The composition as in claim 39 wherein the color of the glass is characterized by a	Examples 9 and 10 (<i>see</i> , Table I)																								

dominant wavelength in the range of 494 to 560 nanometers and a color purity of no higher than 6 percent at a thickness of 4.0 millimeters.	"a color purity ... most preferably not greater than 6" (4:8-9); 4 mm thickness" (4:4)
41. The composition of claim 39 wherein the color of the glass is characterized by a dominant wavelength in the range of 494 to 560 nanometers and a color purity of no higher than 3% at a thickness of 4.0 millimeters.	Examples 9 and 10 (<i>see</i> , Table I) "a color purity ... most preferably no greater than 3" (4:9-10)
42. The composition as in claim 39 wherein the Fe ₂ O ₃ concentration is from 0.51 to 0.61 weight percent.	Examples 8 and 5 (<i>see</i> , Table I)
43. The composition as in claim 39 wherein the direct solar heat transmission is at least 12 percentage points below the visible light transmission.	"a direct solar heat transmission at least 12 percentage points below the visible light transmission (4:5-7)
44. The composition as in claim 39 further including additional ultraviolet absorbing material.	"TiO ₂ may be added to the glass" (4:20)
45. A glass sheet made from the composition as recited in claim 33.	"glass sheets" (7:12)
46. The composition as in claim 39 wherein the Fe ₂ O ₃ concentration is from 0.51 to 0.61 weight percent, the FeO concentration is up to 0.14 weight percent,	Examples 8 and 5 (<i>see</i> , Table I) Examples 2, 5 and 7 (<i>see</i> , Table I)

<p>the Co_3O_4 concentration is from 5 to 24 PPM,</p> <p>the Se concentration is from 1 to 9 PPM</p> <p>and</p> <p>the NiO concentration is 15 to 31 PPM</p> <p>and</p> <p>further wherein</p> <p>said composition has a visible light transmission of 70 percent or greater at a thickness of 4 millimeters.</p>	<p>Examples 6 and 8 (<i>see</i>, Table I)</p> <p>Examples 8 and 3 (<i>see</i>, Table I)</p> <p>Examples 3 and 8 (<i>see</i>, Table I)</p> <p>“in a 4 mm thickness, a visible light transmission of at least 70%” (4:4-5)</p>
<p>47. The composition as in claim 33 wherein</p> <p>the Fe_2O_3 concentration is from 0.51 to 0.61 weight percent,</p> <p>the FeO concentration is up to 0.14 weight percent,</p> <p>the Co_3O_4 concentration is from 5 to 24 PPM and</p> <p>the Se concentration is from 1 to 9 PPM.</p>	<p>Examples 8 and 5 (<i>see</i>, Table I)</p> <p>Examples 2, 5 and 7 (<i>see</i>, Table I)</p> <p>Examples 6 and 8 (<i>see</i>, Table I)</p> <p>Examples 8 and 3 (<i>see</i>, Table I)</p>

HIGBY et al.

A8173

Continuation of Appln. Serial No. 08/472,189

Preliminary Amendment

Entry and consideration of this Amendment is respectfully requested.

Respectfully submitted,



John T. Callahan

Registration No. 32,607

SUGHRUE, MION, ZINN,
MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, D.C. 20037-3213
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

Date: August 31, 2001

HIGBY et al.
A8173
Continuation of Appln. Serial No. 08/472,189
Preliminary Amendment

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Page 1, first paragraph:

This application is a continuation of Application No. 08/472,189 (Confirmation No. Unknown), filed June 7, 1995, which is a continuation of Application No. 08/285,652, filed August 3, 1994, which is a continuation-in-part of United States application No. 08/190,883, filed February 3, 1994, the disclosures of which are all incorporated herein by reference.

IN THE CLAIMS:

Claims 2-12 are canceled.

Claims 13-47 are added as new claims.